

S/N 10/664,269

Response to Office Action Dated 12/30/2005

REMARKS

Applicant respectfully requests reconsideration and allowance of the subject application. Claims 1-50 are pending in this application.

Rejection of the Claims**Rejection under 35 USC § 103(a)**

The Office rejected claims 1-50 under 35 USC § 103(a) as being unpatentable over U.S. Patent Application, Publication No. 2003/0224224, entitled "Power Supply System" by Okada, et al., hereinafter the "Okada reference" or "Okada."

The Office fails to present a Prima Facie case of Obviousness**Claim 1**

Claim 1 defines an apparatus, including:

a fuel cell for producing a flow of electric charges from a fuel;
an electric charge counter coupled with the fuel cell, wherein counted electric charges are proportional to an amount of the fuel used in the fuel cell to produce the counted electric charges; and
a display coupled with the electric charge counter to show an amount of the fuel based on corresponding counted electric charges.

S/N 10/664,269

Response to Office Action Dated 12/30/2005

In contrast to claim 1 above, the Okada reference does not teach or suggest each element of claim 1. In Okada:

- The Okada reference presents a battery and fuel cell combination (“power supply system 111”).
- The Okada “power supply status detector 124” shows remaining power of the battery, measured by a decreasing voltage level of the battery.
- The Okada “remaining fuel detector 116a” merely measures the physical volume of fuel left for the fuel cell to use.

Okada does not teach or suggest an electric charge counter, as in Applicant's claim 1. Okada's description of power remaining does not disclose counting in real time a quantity of charge for each unit of fuel passing through a fuel cell. Thus, Okada does not teach or suggest Applicant's subject matter of measuring fuel by counting coulombs.

In reference to the Office's position that “[Okada's] measurement is through adding and subtracting the correct amount taken into account temperature and pressure differential” it should be noted that Okada's use of temperature and pressure detection does not parallel the use of temperature and pressure measurements in Applicant's subject matter. In Okada, the reference to temperature in the temperature detector 116b and the temperature controller 117a

S/N 10/664,269

Response to Office Action Dated 12/30/2005

pertains to a goal of maintaining the most favorable temperature for optimal functioning of the fuel cell 115 and power storage source 122. Both the Okada temperature detector 116b and voltage detector 116c are used to stop the power supply system 111 when the temperature of the system becomes too high or the voltage becomes too low (column 4, paragraph 46), respectively. The temperature detector 116b and the voltage detector 116c are not used to modify the readout of an electric charge counter, as in Applicant's claim 1.

Since the Okada reference does not teach or suggest each element of Applicant's claim 1, Applicant respectfully suggests that claim 1 is patentable over the Okada reference. Applicant respectfully submits that claim 1 is allowable over the cited reference.

In the Office Action, the Office states that it would have been obvious to one having ordinary skill in the art to devise the display to show the coulomb charge equivalent of the fuel cells. However, claim 1 does not recite devising a display to show the coulomb charge equivalent of a fuel cell. Claim 1 recites something else: showing an amount of fuel.

Additionally, the Office must cite evidence of such ordinary skill of one in the art at the time of Applicant's invention. To assert a prima facie case of obviousness, the Office needs to cite a specific reference or take Official Notice to become part of the evidentiary record of this case that clearly shows that one of ordinary skill in the art at the time of Applicant's invention would devise something in the manner that the Office states the person would.

S/N 10/664,269

Response to Office Action Dated 12/30/2005

Claims 2-15

For at least the reasons set forth above with respect to claim 1, Applicant submits that dependent claims 2-15 are also allowable over the Okada reference. Dependent claims contain the language of the claims from which they depend. Claims 2-15 depend from claim 1. Therefore, claims 2-15 should also be allowable.

Claim 16

Claim 16 defines a fuel cell, including:

a means for converting a fuel into a flow of electric charges, wherein the quantity of electric charges produced over time is proportional to the quantity of fuel molecules converted;
a means for counting the electric charges in the flow; and
a means for displaying an amount of fuel molecules converted.

Claim 16 is not obvious over the Okada reference for the same reasons explained for claim 1. As stated previously, the Okada power supply status detector 124 measures an amount of power remaining in the power storage source 122 (i.e., the battery) and does not disclose real time counting of a quantity of electrons (e.g., in Coulombs) that is proportional to a quantity of fuel passing by. Measurement of fuel by Coulomb counting is not disclosed by the Okada reference.

S/N 10/664,269

Response to Office Action Dated 12/30/2005

Since the Okada reference does not teach or suggest each element of Applicant's claim 16, Applicant respectfully suggests that claim 16 is allowable over the Okada reference.

Claims 17-31

For at least the reasons set forth above with respect to claim 16, Applicant submits that dependent claims 17-31 are also allowable over the Okada reference. Dependent claims contain the language of the claims from which they depend. Claims 17-31 depend from claim 16. Therefore, these claims should also be allowable.

Claim 32

Claim 32 defines a fuel supply system, including:

a fuel container for holding a remaining amount of fuel;
an electric charge counter to count an electric charge content of an amount of fuel taken from the fuel container, wherein the count of the electric charge content is proportional to the amount of the fuel taken from the fuel container; and
a display to show the remaining amount of fuel in the fuel container.

Applicant respectfully submits that claim 32 is not obvious over the Okada reference, for similar reasons as explained above for claim 1. The Okada reference does not teach or suggest an electric charge counter, for instance.

Since the Okada reference does not teach or suggest each element of Applicant's claim 32, Applicant respectfully suggests that claim 32 is allowable over the Okada reference.

S/N 10/664,269

Response to Office Action Dated 12/30/2005

Claims 33 & 34

For at least the reasons set forth above with respect to claim 32, Applicant submits that dependent claims 33 & 34 are also allowable over the Okada reference. Dependent claims contain the language of the claims from which they depend. Claims 33 & 34 depend from claim 32. Therefore, claims 33 & 34 should also be allowable.

Claim 35

Claim 35 defines a fuel gauge, comprising:

a charge counter to count electrical charges produced in a fuel cell by a fuel from a fuel supply; and

a display to show an amount of the fuel based on the counted electrical charges.

Applicant respectfully submits that claim 35 is not obvious over the Okada reference for similar reasons as explained above for claim 1. The Okada reference does not teach or suggest a charge counter to show an amount of fuel used in a fuel cell.

Since the Okada reference does not teach or suggest each element of Applicant's claim 35, Applicant respectfully suggests that claim 35 is allowable over the Okada reference.

S/N 10/664,269

Response to Office Action Dated 12/30/2005

Claims 36 & 37

For at least the reasons set forth above with respect to claim 35, Applicant submits that dependent claims 36 & 37 are also allowable over the Okada reference. Dependent claims contain the language of the claims from which they depend. Claims 36 & 37 depend from claim 35. Therefore, claims 36 & 37 should also be allowable.

Claim 38

Claim 38 describes a count interpreter for a charge counting fuel gauge comprising:

- a count calibrator; and
- a fuel loss compensator.

Applicant respectfully submits that claim 38 is not obvious over the Okada reference. For example, claim 38 describes a count calibrator. Since the Okada reference does not teach or suggest counting charges, it follows that Okada also does not show or disclose a count calibrator for a charge counter that counts the charges.

Since the Okada reference does not show or disclose each element of Applicant's claim 35, Applicant respectfully suggests that claim 38 is allowable over the Okada reference.

Claims 39-44

For at least the reasons set forth above with respect to claim 38, Applicant submits that dependent claims 39-44 are also allowable over the Okada reference.

S/N 10/664,269

Response to Office Action Dated 12/30/2005

Dependent claims contain the language of the claims from which they depend. Claims 39-44 depend from claim 38. Therefore, claims 39-44 should also be allowable.

Claim 45

Claim 45 describes a method that includes:

producing electric charges in a fuel cell using a fuel;
counting the electric charges to determine an amount of the fuel used to produce the electric charges; and
displaying the amount.

Applicant submits that claim 45 is not obvious over the Okada reference for reasons similar to those explained above for claim 1. The Okada reference does not teach or suggest "counting the electric charges to determine an amount of the fuel" as claim 45 does.

Since the Okada reference does not teach or suggest each element of Applicant's claim 45, Applicant respectfully suggests that claim 45 is allowable over the Okada reference.

Claims 46 & 47

For at least the reasons set forth above with respect to claim 45, Applicant submits that dependent claims 46 & 47 are also allowable over the Okada reference. Dependent claims contain the language of the claims from which they depend.

S/N 10/664,269

Response to Office Action Dated 12/30/2005

Claims 46 & 47 depend from claim 45. Therefore, claims 46 & 47 should also be allowable.

Claim 48

Claim 48 describes a method that includes:

connecting an electric charge counter to a fuel cell, wherein the fuel cell produces electric charges from a fuel;

counting the electric charges; and

displaying an amount of fuel corresponding to the counted electric charges.

Applicant submits that claim 48 is not obvious over the Okada reference for similar reasons given for claim 1 above. The Okada reference does not teach or suggest "displaying an amount of fuel corresponding to the counted electric charges."

Since the Okada reference does not teach or suggest each element of Applicant's claim 48, Applicant respectfully suggests that claim 48 is allowable over the Okada reference.

Claims 49 & 50

For at least the reasons set forth above with respect to claim 48, Applicant submits that dependent claims 49 & 50 are also allowable over the Okada reference. Dependent claims contain the language of the claims from which they depend. Claims 49 & 50 depend from claim 48. Therefore, claims 49 & 50 should also be allowable.

S/N 10/664,269

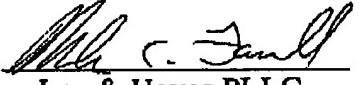
Response to Office Action Dated 12/30/2005

CONCLUSION

Applicant respectfully suggests that claims 1-50 are in condition for allowance and requests reconsideration and issuance of the subject application. Should any matter in this case remain unresolved, the undersigned attorney respectfully requests a telephone conference with the Examiner to resolve any such outstanding matter.

Respectfully Submitted,

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